Application Number 10/652,672
Amendment dated October 1, 2007
Responsive to Office Action mailed June 29, 2007

## REMARKS

This amendment is responsive to the Office Action dated June 29, 2007. Applicant has amended claims 1–3, 5, 6, 9, 11, 12, 14, 18, 19, 21–25, 28, 30, 31, 33, 34, 35, and 38–42. Claims 1–42 are pending.

## Claim Amendment

Applicant has amended claim 22 for reasons unrelated to patentability, e.g., to correct certain grammatical mistakes. In particular, Applicant has amended the word "calculating" to "calculates." No new matter has been added by way of this amendment.

## Claim Objections

### Objections to Claim Language and Grammar

In the Office Action, the Examiner objected to claims 1, 3–6, 11–13, 19–25, 28, 31, and 33–35. The Examiner objected to claim 1 because of the term "the selected tunnel termination device." Applicant has amended claim 1 to recite "the selected one of the plurality of the tunnel termination devices." Applicant has similarly amended claim 9. Applicant has amended claim 11 to require "the selected one of the tunnel termination devices," as claim 11 requires "selecting one of the tunnel termination devices." Applicant has similarly amended claims 14, 18, 30, and 38.

The Examiner objected to claim 5 because of the phrase "the selected preference level." Applicant has amended claim 5 to require "the selected one of the preference levels." Applicant has similarly amended claim 34.

The Examiner also objected to claim 5 because of the phrase "the subset of the tunnel termination devices," in lines 8–9, suggesting amending claim 5 to require, "the subset of the plurality of tunnel termination devices." Applicant respectfully disagrees with the suggested language, but for the purpose of clarity, Applicant has amended claim 5 to require, "each of the tunnel termination devices of the identified subset." Applicant respectfully submits that claim 5 as amended clearly, concisely, and unambiguously refers to the subset associated with the selected one of the preference levels that was identified. Similar remarks may apply with respect to claims 6, 25, 34, and 35.

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Applicant has amended claims 11 and 12 with respect to the phrase, "the set." Applicant respectfully disagrees with the Examiner's suggested amendment to claims 11 and 12. Applicant has amended claims 11 and 12 to require "the selected set." Applicant respectfully submits that the phrase "the selected set" clearly, concisely, and unambiguously refers to the set of tunnel termination devices which was selected.

Applicant has amended claim 25 to depend from claim 24, which requires "associating the plurality of tunnel termination devices with subscriber preference levels." Applicant has also amended the phrase "the preference levels" to require "the subscriber preference levels."

The Examiner further objected to claims 40, 41, and 42, arguing that the term "LNSs" should be "the plurality of LNSs." Applicant has amended claims 40, 41, and 42 to require "each of the plurality of the LNSs."

### Objections due to Lack of Support in the Specification

The Examiner objected to claims 30–38 for lacking support in the specification for the requirement "computer-readable medium" required by, e.g., claim 30. Applicant respectfully disagrees. Applicant respectfully directs the Examiner's attention to Applicant's specification, ¶ [0010] which states, "In another embodiment, a computer-readable medium comprises instructions." Paragraph [0010] goes on to state that the instructions "cause a programmable processor to" perform various functions. Moreover, Applicant's specification, ¶ [0030], clearly states that various modules "may be implemented as executable instructions fetched from one or more computer-readable media." A singular element of a set of "computer-readable media" is a "computer-readable medium." Applicant's specification, ¶ [0030], also provides support for the term "computer-readable medium," stating, "the functions of LAC 10 may be implemented by executing the instructions of the computer-readable medium with one or more processors, discrete hardware circuitry, firmware, software executing on a programmable processor, or a combination of any of the above," (emphasis added).

In addition, Applicant's specification, ¶ [0030], describes several exemplary embodiments of a computer-readable medium, including "random access memory (RAM), read-only memory (ROM), non-volatile random access memory (NVRAM), electrically erasable programmable read-only memory (EEPROM), flash memory, and the like." Therefore, Applicant respectfully

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submits that no amendment to the specification is necessary, and that the specification as
submitted provides clear support and antecedent basis for the term "computer-readable medium."

### Claim Rejection Under 35 U.S.C. § 112

In the Office Action, the Examiner rejected claims 2–3, 11–18, 28, and 40–41 under 35
U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and
distinctly claim the subject matter which applicant regards as the invention.

In particular, the Examiner argued that the term "the respective tunnel termination
device" lacks proper antecedent basis as used in, e.g., claims 2 and 11. Applicant has amended
claim 2 to require "calculating the weightings based on a resource constraint associated with each
of the plurality of the tunnel termination devices." Applicant has similarly amended claim 11.

The Examiner also argued that the term "the tunneling protocol" of claim 28 lacked
proper antecedent basis. Applicant has amended claims 28 for purposes of clarification. In
particular, Applicant has amended claim 28 to require "a tunneling protocol."

The Examiner further stated that the claim language of claim 40 was unclear with respect
to "LNSs." As discussed above, Applicant has amended claim 40 to require "each of the
plurality of the LNSs."

Applicant submits that claims 2–3, 11–18, 28, and 40–41, as respectively amended,
particularly point out and distinctly claim the subject matter, as required by 35 U.S.C. 112,
second paragraph. Therefore, Applicant respectfully requests withdrawal of this rejection.

### Claim Rejection Under 35 U.S.C. § 101

In the Office Action, the Examiner rejected claims 19–29 are rejected under 35 U.S.C. §
101 because "A network device" comprising a tunneling module does not include any functional
structure of a device. Applicant has amended claim 19 to recite a network device having one or
more processors. Claim 19 as amended makes clear that the processors execute the connection
handler and the tunneling module. In this manner, claim 19 is directed to a practical application
embodied within a real-world network device. Consequently, claim 19 is directed to patentable
subject matter and not software per se. No new matter has been added by way of this
amendment. See, for example, paragraphs [0010] and [0030]. Although Applicant does not

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acquiesce as to the Examiner's assertion regarding a recitation of functional structure with respect to claim 19 as previously presented, Applicant respectfully submits that claim 19 as currently amended recites functional structure and, consequently, is patentable.


## Claim Rejection Under 35 U.S.C. § 102

In the Office Action, the Examiner rejected claims 1, 7, 10, 19–20, 26, 29–30, and 36 under 35 U.S.C. § 102(e) as being anticipated by Ramankutty et al. (US 6,917,592, *hereinafter* "Ramankutty"). Applicant respectfully traverses the rejection to the extent such rejection may be considered applicable to the amended claims. Ramankutty fails to disclose each and every feature of the claimed invention, as required by 35 U.S.C. § 102(e), and provides no teaching that would have suggested the desirability of modification to include such features.

Applicant has amended claim 1 for the purpose of clarity. Applicant has amended claim 1 to recite receiving a network access request and user information from a subscriber device, authenticating the user information with an access concentrator of a network service provider, and, upon authenticating the user information, selecting one of a plurality of tunnel termination devices based on weightings associated with each of the plurality of tunnel termination devices. This makes it clear that the selection of one of the tunnel termination devices is performed upon authenticating the user information. Moreover, amended claim 1 requires that selecting the one of the plurality of tunnel termination devices is performed prior to establishing a network tunnel with any of the plurality of tunnel termination devices for terminating a subscriber session associated with the subscriber device. Ramankutty fails to teach or suggest the limitations of Applicant's claim 1 as amended.

Instead, Ramankutty discloses switching between LNSs when a previously selected and utilized LNS becomes heavily loaded. That is, the system of Ramankutty establishes a network tunnel with an LNS for a particular communication session. At some point later in time the network tunnel may be switched to a new LNS. According to Ramankutty, once an LNS has become heavily loaded, "the LNS 116 sends a request to the LAC 102 to switch over the LNS 116." Ramankutty, col. 4, ll. 66–67. In response, LAC 102 may form a tunnel with LNS 110 and transmit data to LNS 110. Ramankutty, col. 5, ll. 5–6. Switching between LNSs as described in Ramankutty, however, does not teach or suggest selecting one of a plurality of

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tunnel termination devices <u>prior</u> to establishing a network tunnel associated with the communication session with any of the plurality of the tunnel termination devices. In particular, the device of Ramankutty must have already established a network tunnel with LNS 116 in order to <u>switch</u> from LNS 116 to LNS 110. In fact, the Ramankutty approach specifically requires waiting until an LNS becomes "overloaded or inoperative." This situation is avoided in Applicant's technique that selects an LNS based on weightings prior to even establishing a network tunnel with the LNSs for terminating the subscriber session. Therefore, Ramankutty fails to teach or suggest the requirements of Applicant's claim 1 as amended. Similar remarks may apply with respect to independent claims 19 and 30, which recite similar limitations.

For at least these reasons, Applicant's independent claims 1, 19, and 30 as respectively amended are patentable over Ramankutty. The claims dependent from independent claims 1, 19, and 30, namely claims 7, 10, 20, 26, 29, and 36, inherit the requirements of the respective base claims and are therefore likewise patentable.

In order to support an anticipation rejection under 35 U.S.C. § 102(e), it is well established that a prior art reference must disclose each and every element of a claim. This well known rule of law is commonly referred to as the "all-elements rule."[1] If a prior art reference fails to disclose any element of a claim, then rejection under 35 U.S.C. § 102(e) is improper.[2] Ramankutty fails to disclose each and every limitation set forth in claims 1, 7, 10, 19–20, 26, 29–30, and 36. For at least these reasons, the Office Action has failed to establish a prima facie case for anticipation of Applicant's claims 1, 7, 10, 19–20, 26, 29–30, and 36 under 35 U.S.C. § 102(e). Therefore, Applicant respectfully requests withdrawal of this rejection.

## Claim Rejection Under 35 U.S.C. § 103

In the Office Action, the Examiner rejected claims 2–6, 11–13, 16, 21–25, and 31–35 under 35 U.S.C. § 103(a) as being unpatentable over Ramankutty in view of Sitaraman et al. (US

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[1] *See Hybritech Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 231 USPQ 81 (CAFC 1986) ("it is axiomatic that for prior art to anticipate under 102 it has to meet every element of the claimed invention").
[2] *Id. See also Lewmar Marine, Inc. v. Barient, Inc.* 827 F.2d 744, 3 USPQ2d 1766 (CAFC 1987); *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (CAFC 1990); *C.R. Bard, Inc. v. MP Systems, Inc.*, 157 F.3d 1340, 48 USPQ2d 1225 (CAFC 1998); *Oney v. Ratliff*, 182 F.3d 893, 51 USPQ2d 1697 (CAFC 1999); *Apple Computer, Inc. v. Articulate Systems, Inc.*, 234 F.3d 14, 57 USPQ2d 1057 (CAFC 2000).

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7,139,276, *hereinafter* "Sitaraman"). The Examiner rejected claims 8, 27, and 37 under 35 U.S.C. § 103(a) as being unpatentable over Ramankutty in view of Loehndorf, Jr. et al. (US 6,094,437, *hereinafter* "Loehndorf"). The Examiner also rejected claims 9, 28, and 38 under 35 U.S.C. § 103(a) as being unpatentable over Ramankutty in view of Gaddis et al. (US 6,965,937, *hereinafter* "Gaddis"). The Examiner rejected claim 39 under 35 U.S.C. § 103(a) as being unpatentable over Ramankutty in view of Dick et al. (US 2002/0172174, *hereinafter* "Dick"). The Examiner further rejected claims 14 and 15 under 35 U.S.C. § 103(a) as being unpatentable over Ramankutty and Sitaraman in view of Bishara et al. (US 7,120,834, *hereinafter* "Bishara"). The Examiner rejected claim 17 under 35 U.S.C. § 103(a) as being unpatentable over Ramankutty in view of Loehndorf. The Examiner rejected claim 18 under 35 U.S.C. § 103(a) as being unpatentable over Ramankutty and Sitaraman in view of Gaddis. Finally, the Examiner rejected claims 40–42 under 35 U.S.C. § 103(a) as being unpatentable over Ramankutty and Dick in view of Sitaraman. Applicant respectfully traverses these rejections to the extent such rejections may be considered applicable to the claims as amended. The applied references fail to disclose or suggest the inventions defined by Applicant's claims, and provide no teaching that would have suggested the desirability of modification to arrive at the claimed invention.

As a preliminary matter, Applicant notes that the applied references fail to overcome the deficiencies of Ramankutty explained above. For example, none of the applied references teach, suggest, or disclose upon authenticating the user information, selecting the one of the plurality of tunnel termination devices prior to establishing a network tunnel with any of the plurality of tunnel termination devices for terminating a subscriber session associated with the subscriber devices as required by claim 1 as amended. Consequently, the claims dependent from independent claims 1, 19, and 30, i.e., claims 2–6, 8, 9, 21–25, 27, 28, and 31–38 are patentable.

Applicant has also similarly amended independent claims 11 and 39. Therefore, similar arguments as made in response to rejections based on 35 U.S.C. § 102 may apply with respect to claims 11 and 39. Therefore, claims 11 and 39, as well as the claims dependent therefrom, i.e., claims 12–18 and 40–42, are patentable for at least these reasons as well. Moreover, the claims include a number of additional features that the applied references likewise fail to teach, suggest, or disclose, alone or in combination.

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For example, claim 2 as amended requires calculating the calculating the weightings associated with each of the plurality of the tunnel termination **devices** based on a resource constraint associated with each of the plurality of the tunnel termination devices. The Office Action acknowledged that Ramankutty failed to disclose this requirement, but cited Sitaraman in support of the rejection of claim 2. However, Sitaraman fails to teach or suggest calculating the weightings associated with each of the plurality of the tunnel termination **devices**. Instead, Sitaraman teaches determining weightings associated with **existing tunnels** themselves, i.e., tunnels already originating from the LAC. Sitaraman, col. 5, ll. 63–65. Therefore, Ramankutty in view of Sitaraman fails to teach or suggest calculating the calculating the weightings associated with each of the plurality of the tunnel termination **devices** based on a resource constraint associated with each of the plurality of the tunnel termination **devices**, as required by Applicant's claim 2 as amended. Such techniques require existing tunnels and provide no teaching with respect to selection of tunnel termination devices prior to establishing any tunnel for termination a subscriber session, as required by claims 1 and 2. Applicant further notes that the other applied references fail to teach or suggest this requirement of claim 2 as amended. Similar remarks may apply with respect to claims 5, 11, 15, 25, 31, 34, and 40 as respectively amended.

Applicant's claim 4 requires assigning the weightings to the tunnel termination devices based on user input. In the Office Action, the Examiner cited first communication network 440 of FIG. 4 of Sitaraman, arguing that network 440 was user input on which weightings for the tunnels of Sitaraman was based. However, Sitaraman teaches that network 440 merely includes traffic that must traverse one of the tunnels of the system of Sitaraman. *See* Sitaraman, col. 6, ll. 6–24. Sitaraman fails to disclose assigning the weightings to the tunnel termination devices based on user input. Instead, Sitaraman discloses assigning weightings to tunnels only based on predefined algorithms. *See, e.g.,* Sitaraman, col. 7, ll. 16–22; *see also* Sitaraman, FIGS. 7–14. Therefore, Ramankutty in view of Sitaraman fails to teach, suggest, or disclose assigning weights based on, e.g., a user preference or a manually-configured weighting scheme. *Cf.* Applicant's specification, ¶¶ [0006], [0022], [0035]. Similar remarks may apply with respect to claims 13, 23, 33, and 42.

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Claim 5 as amended requires, *inter alia*, issuing a query to receive tunnel definitions associated with the user information received from the subscriber device, wherein the tunnel definitions associate each of the tunnel termination devices with preference levels, identifying a subset of the tunnel termination devices associated with the selected one of the preference levels, and calculating the weightings for each of the tunnel termination devices of the identified subset. No new matter has been added by this amendment. See, for example, paragraph [0028]. Ramankutty in view of Sitaraman fail to teach, suggest, or disclose receiving tunnel definitions that are associated with user information received from a subscriber device. Instead, Ramankutty only contemplates switchover when a LNS is inoperative or overloaded, and Sitaraman relies on static mapping to existing tunnels. Even in combination, the references fail to teach or suggest use of tunnel definitions that are retrieved based on user information from the subscriber device, as required by claim 5, which can be used to set preferences for tunnel termination devices on a per-user basis.

Furthermore, Ramankutty in view of Sitaraman fail to teach, suggest, or disclose tunnel termination definitions that associate each of the tunnel termination devices with different preference levels as required by claim 5. The Office Action acknowledged that Ramankutty failed to disclose this requirement, but argued that Sitaraman disclosed this requirement. However, Sitaraman fails to teach or suggest preference levels, from which a subset of tunnel termination devices may be selected. Instead, Sitaraman generally discusses using parameters in association with a tunnel selection algorithm to select between existing tunnels and, in particular, between a static mapping to existing tunnels. *See, e.g.*, Sitaraman, col. 6, ll. 13–23. Applicant's claim 5 requires preference levels such that a subset of tunnel termination devices may be associated with one of the preference levels. Sitaraman fails to teach or suggest such preference levels. Therefore, Ramankutty in view of Sitaraman fails to teach or suggest the requirements of Applicant's claim 5 as amended. Similar remarks may apply with respect to claims 11, 24, and 34, as respectively amended.

For at least these reasons, the Office Action has failed to establish a prima facie case for non-patentability of Applicant's claims 2–6, 8, 9, 11–18, 21–25, 27, 28, 31–35, and 37–42 under 35 U.S.C. § 103(a). Therefore, Applicant respectfully requests withdrawal of this rejection.

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## CONCLUSION

All claims in this application are in condition for allowance. Applicant respectfully requests reconsideration and prompt allowance of all pending claims. Please charge any additional fees or credit any overpayment to deposit account number 50-1778. The Examiner is invited to telephone the below-signed attorney to discuss this application.

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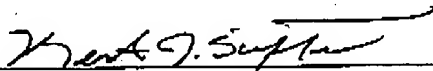
October 1, 2007                                 _Kent J. Sieffert_
SHUMAKER & SIEFFERT, P.A.                       Name:  Kent J. Sieffert
1625 Radio Drive, Suite 300                     Reg. No.:  41,312
Woodbury, Minnesota  55125
Telephone:  651.735.1100
Facsimile:  651.735.1102

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